

STEPHEN ROBERT KRAEMER

PERSONAL

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COURIER ADDRESS: U.S. Environmental Protection Agency
Ronald Reagan Building, 1300 Pennsylvania Ave, N.W., Room #51129
Washington, DC 20004

EDUCATION

GRADUATE: Ph.D. in Environmental Science (December 1990)(96 credits)
Indiana University, Bloomington, IN 47405
Dissertation: *Modeling of regional groundwater flow in fractured rock aquifers.*
Advisor: Dr. Henk M. Haitjema

M.S. in Environmental Science (August 1985)(58 credits)
School of Public & Environmental Affairs
Indiana University, Bloomington, IN 47405
Advisor: Dr. Daniel Willard

Selected coursework: Principles of Hydrogeology, Advanced Hydrogeology, Groundwater Modeling, Geomorphology, Soil Engineering & Science, Applied Earth Science, Surface Water Hydrology, Aquatic Chemistry, River Quality Assessment, Hazardous Waste Management, Environmental Statistics, Applied Ecology, Env. Analysis Workshop - mock trial with third year law students, Applied Mathematics, Environmental Chemistry& Lab, Public Management Economics, GPA=3.9 out of 4.0

UNDERGRADUATE: B.S. in Engineering Science (May 1982)(128 credits)
University of Notre Dame, Notre Dame, IN 46556

Selected coursework: Engineering Common Core (77 cr. hrs.), General Biology I & II, Environmental Impact Assessment, Natural Resources, Environmental Health Engineering, Principles of Combustion.
Soccer Team monograms: 1979,1980,1981, Jr. Varsity Most Valuable Player 1980.

HIGH SCHOOL: Diploma, (b) (6)
(b) (6)
(b) (6)
National Honor Society,

CURRENT POSITION

2012 - present Research Hydrologist (GS 1315-13-10), detail to the Office of Science and Policy
U.S. Environmental Protection Agency, Washington, DC
Supervisor: Ms. Mimi Dannel (202) 564-9944
Duties: geohydrological modeling support to the EPA hydraulic fracturing study, with leadership on report to Congress on scenario modeling of water acquisition impact on drinking water resources and subsurface migration pathways.
full time (40 hours per week)

2003 - 2012 Research Hydrologist (GS 1315-13-10), Regulatory Support Branch

Ecosystems Research Division
National Exposure Research Laboratory
U.S. Environmental Protection Agency, Athens, Georgia
Supervisor: Dr. John M. Johnston (706) 355-8300
Duties: research, technical assistance, project and contract management
full time (40 hours per week)

2001-2002 Research Hydrologist (GS 1315-13-6), Landscape Characterization Branch
Environmental Sciences Division
National Exposure Research Laboratory
U.S. Environmental Protection Agency, Research Triangle Park, NC
Supervisor: Dr. Dorsey Worthy (919) 541-3075
Duties: research, technical assistance, project and contract management
full time (40 hours per week)

1997 - 2001 Research Hydrologist (GS 1315-13-6), Regulatory Support Branch
Ecosystems Research Division
National Exposure Research Laboratory
U.S. Environmental Protection Agency, Athens, Georgia
Supervisor: Dr. Dave Brown (retired)
Duties: research, technical assistance, project and contract management
full time (40 hours per week)

1990-97 Research Hydrologist (GS 1315-13-4), Abiotic Processes and Applications Branch
Subsurface Protection and Remediation Division
National Risk Management Research Laboratory
U.S. Environmental Protection Agency, Ada, Oklahoma
Supervisor: Dr. Stephen Schmelling (580) 436-8540
Duties: research, technical assistance, project and contract management
full time (40 hours per week)

ACADEMIC APPOINTMENTS

1989-1990 Lecturer (Hydrology), Department of Environmental Sciences
University of Virginia, Charlottesville
Advisor: Dr. William Odum (deceased)
Duties: see Teaching and Service
full time (40 hours per week)

1983-1989 Associate Instructor,
School of Public & Environmental Affairs, Indiana University.
Supervisor: Dr. Daniel Willard (retired)
Duties: see Teaching and Service
part time (20 hours per week)

OTHER APPOINTMENTS AND PROFESSIONAL CONSULTANTSHIPS

1984 (7 months) Intern, Oak Ridge National Laboratory,
Environmental Sciences Division, Oak Ridge, Tennessee.
Supervisor: Larry Barnthouse
Duties: Computer modeling of groundwater
contamination potential as part of environmental
risk analysis of oil shale technologies.
full time (40 hours per week)

1983 (3 months) Intern, U.S. Environmental Protection Agency,
Office of Solid Waste, Land Disposal Branch, Washington, DC
Supervisor: Bob Tonnetti
Duties: Researched the suitability of saturated,
low-permeable settings for hazardous waste containment.

full time (40 hours per week)

1982 (3 months) Intern, Department of Health and Human Services,
Office of Facilities Engineering, Washington, DC
Duties: Economic analysis and ranking of energy
conservation projects for DHHS Indian Health
Facilities.
full time (40 hours per week)

PROFESSIONAL SOCIETIES

- American Water Resources Association
- American Water Works Association
- American Geophysical Union
- Association of Ground Water Scientists and Engineers, National Ground Water Association
- Geological Society of America
- National Speleological Society
- Sigma Xi, The Scientific Research Society
- Society of Petroleum Engineers

HONORS

- EPA Office of Research and Development Award for “Exceptional/Outstanding Technical Assistance to the Regions/Program Offices”, June 20, 2001.
- Outstanding Student Award, Indiana Water Resources Association Symposium, DePauw University, Greencastle, Indiana, June 10, 1988.
- Outstanding Associate Instructor Award, School of Public & Environmental Affairs (SPEA), 1983-84.

TEACHING ASSIGNMENTS

USEPA:

1994- present Instructor for:

* EPA Training Course: Source Water Delineation for Public
Water Supply Wells using the Analytic Element Method (2.0 days)

USEPA Office of Water, Washington, DC, 29 March 2000
USEPA Region 3, Philadelphia, PA, June 1995, 15-16 June 1999, 29-30 Aug 2001, 10-11 Dec 2003,
2-3 June 2010
USEPA Region 5, 5 May 1999
USEPA Region 6, Dallas, TX, 6-8 Aug 1996
USEPA Region 7, Kansas City, KS, 25-27 Apr 1995
USEPA Region 8, Denver, CO, 27-28 Feb 2001
USEPA Region 9, San Francisco, CA, June 1996, 3-4 Apr 2002, 21-22 Sept 2005, 12-14 Dec 2007
USEPA Region 10, Seattle, WA, 11-12 Jan 2000

* EPA Workshop: Subsurface Modeling, Wellhead Protection Modeling
using the Analytic Element Method (1.0 days)

March 18, 2004, EPA Region 4, Atlanta, GA.
November 16, 2003, Raleigh, NC, Carolina Geological Society Annual Meeting (0.5 day)
* EPA Seminar: Hands-on modeling for petroleum hydrocarbon release sites —
Introduction to WhAEM2000 (0.5 day), May 4, 2000, Athens, GA
June 21, 1997, Rapid City, SD, for National Rural Water Association
February 28, 1997, San Francisco, CA
August 15, 1996, Ada, OK
June 4, 1996, Riga (Jurmula), Latvia, for US Agency for International Development,
as part of Applied Groundwater Modeling Course with Ken Bradbury and Maureen Muldoon

(Wisconsin Geological and Natural History Survey), Rodney Sheets (USGS, Columbus, OH)
November 3, 1994, Ada, OK, as part of the EPA course Subsurface Modeling,
with Jim Weaver, Joe Williams, Dave Burden.

University of Virginia:

1989-90 Instructor for:
* EVHY 545 Hydrological Transport Processes (4cr.)
* EVSC 494/796 Applied Mathematics for Environmental Science
Lectured for:
* EVHY 340 Introduction to Physical Hydrology
* EVSC 494/796 Geological Aspects of Radioactive Waste Disposal

Indiana University:

1988-89 Lectured in:
* G551 Advanced Hydrogeology (Geology Dept.)
* E326 Mathematics for Environmental Science
* E475 Techniques in Environmental Science

1987-88 Instructor for:
* E554 Groundwater Flow Modeling
* E325 Computer Programming for Environmental Science (2 cr.)

1986-87 Associate Instructor for:
* E555 Soils Engineering and Science
* E554 Groundwater Flow Modeling
* E326 Mathematics for Environmental Science

1985-86 Associate Instructor for:
* E555 Soils Engineering and Science
* E554 Groundwater Flow Modeling
* E400 Elements of Fluid Mechanics

1984-85 Instructor for:
* E200 Intro to Environmental Science

Associate Instructor for:
* E400 Groundwater Flow Modeling
* E200 Intro to Environmental Science

1983-84 Associate Instructor for:
* E200 Intro to Environmental Science

SERVICES

USEPA:

- Acting Chief, ERD Regulatory Support Branch, Sept 8-10, 2009; Sept 20-23, 2010, Mar 1-4, 28-31, 2011.
- Mentor, Dr. Vikente Gorokhovski, SEE, EPA Athens, GA, Feb 2011 - April 2012.
- Mentor, Dr. Katie Price, NERL pool post term fed, EPA Athens, GA, Oct 2009 - April 2012.
- Advisor for Dr. Karl Bandilla, National Research Council Research Associate, EPA Athens, GA, 3/2009 - 7/2010.
- Mentor, Mr. Andrew Leidner, EPA student volunteer, 2006-2007.
- Mentor, Dr. Kuban Ibraev, Fullbright Scholar from Kyrgyzstan (2004).
- Mentor, Rayshawn Askew, National Association for Equal Opportunity in Higher Education (NAFEO), EPA Athens, GA (6/00 - 8/00).

- Mentor, Debra Messer, McNair Scholars Program, East Central University, June - Sept, 1996.
- Mentor, Julia M. Mead, McNair Scholar & Native American Research Apprenticeship Program, East Central University, Ada, OK, 1993.
- Organizing Committee, Sixth International Conference on Analytic Element Modeling (ICAEM) in Ground Water Flow, Golden, CO (May 2013).
- Organizing Committee, 2011 CO₂ Geologic Sequestration and Water Resources Workshop, Lawrence Berkeley National Laboratory, June 1-2, 2011.
- Organizing Committee, Fifth International Conference on the Analytic Element in Modeling (ICAEM) Ground Water Flow, Manhattan, KS (14-17 May 2006).
- Organizing Committee, Third International Conference on the Analytic Element in Modeling (ICAEM) Ground Water Flow, East Gull Lake, MN (17-19 April 2000).
- Organizing Committee, Second International Conference, Analytic Based Modeling (ICAEM) of Groundwater Flow, Nunspeet, The Netherlands, April 7-11, 1997.
- Organizing committee, First International Conference, Analytic Element Modeling of Groundwater Flow, Indianapolis, Indiana, April 19-21, 1994.
- ORD Report on the Environment (ROE 2012) Sustainability Indicators, Water Withdrawals, draft 3-16-2012 (memo to Ed Washburn OSP (30 March 2012)
- ORD project report review, Relation between nitrates in water wells and potential sources in the lower Yakima Valley, Washington, draft 16 December 2011 (memo to Michael Cox from Stephen Kraemer and Roger Burke, 13 Jan 2012).
- ERD manuscript review, Effect of forest harvesting on hydrogeomorphic processes in steep terrain of central Japan, by Fumitoshi Imaizumi and Roy Sidle, for journal *Geomorphology* (August 2011).
- ORD project report review, BASINS CAT and WEPPCAT climate assessment tools: case study guide to potential applications, prepared by NCEA staff and AquaTerra Consultants (June 2011).
- ERD manuscript review, Temporal gas phase pressure and moisture content beneath a slab-on-grade building, by James W. Weaver, Fred D. Tillman Jr., and David L. Spidle, target journal *Environmental Science and Technology* (Aug 2010).
- ERD manuscript review, Simulation of the quantity, variability, and timing of streamflow in the McTier Creek basin, South Carolina, by T.D. Feaster, H.E. Golden, K.R. Odum, M.A. Loery, P.A. Conrads, and P.M. Bradley, *USGS SIR 2010-XXXX* (May 2010).
- ERD manuscript review, Using an Integrated, Multi-disciplinary Framework to Support Quantitative Microbial Risk Assessment, by Gene Whelan, Michael Tryby, Mitchell Pelton, Jeffery Soller, and Karl Castleton, for submittal to proceedings of International Environmental Modelling and Software Society (iEMSS) 2010 Congress (March 2010).
- ERD manuscript review, Watershed delineation and characterization with the Albemarle-Pamlico Estuary System, by Michael Cyterski and Lourdes Prieto, for submittal to unnamed journal (July 2009)
- ERD manuscript review, Modeling spatially-explicit precipitation data and watershed modeling: runoff response and implications for linking multi-media models, by Heather Golden et al., for submittal to *WRR*, (May 2009)
- ERD manuscript review, Data for Environmental Modeling (D4EM)- Software components for automated data retrieval and processing in support of environmental modeling, by Kurt Wolfe, Rajbir Parmar, and Gerry Laniak (for submittal to *Environmental Modeling and Software* (Feb 2009).
- ERD manuscript review, Infiltration BMP Tutorials for HSPF (an html page), Yusuf Mohamoud, Rajbir Parmar, and Kurt Wolfe, USEPA Athens, GA (Jan 2009).
- ERD manuscript review, proceedings article, Modeled watershed runoff associated with variations in precipitation data, with implications for contaminant fluxes, by Heather Golden, Chris Knightes, Ellen Cooter, and Robin Dennis, 6pp. (8/2008).
- Peer review, manuscript, Computational Modeling of underground injection of carbon dioxide for determination of area of review, and potential risk to USDWs, by Greg Schnaar and Dominic DiGiulio, May 2008.

- Peer Reviewer, Journal of Environmental Management (1 article 11/2007), Journal of Environmental Quality, (1 article 6/2007); Advances in Water Resources, Elsevier (2 articles 2/2005, 7/2009); Journal of the American Water Resources Association (1 article 3/2004); Ground Water (1 article 8/2003, 1 article 6/2007, 1 article 1/2009, 1 article 1/2011); Hydrological Processes (1 article 4/2001); ASCE Journal of Hydrologic Engineering (1 article 02/2000, 1 article 09/2005); Ecological Economics (1 article 11/1998, 1 article 6/1999, 1 article 12/1999, 1 article 7/2000); Journal of Hydrology (1 article 1994, 2 articles 1995, 1 article 1997, 1 article 1999); Water Resources Research (2 articles 1993, 1 article 1996, 3 articles 1997); ASCE Remediation in Rock Masses (1 article 1/1997); Water Research Journal (1 article 3/1996, 1 article 1/1999); Geophysical Research Letters (1 article 1995).
- Review, EPA Report: A systematic approach for evaluation of capture zones at pump and treat systems, prepared by GeoTrans, Inc. (6/2007)
- member, ERD Safety, Health, and Environmental Management committee (SHEM), 2007-2012.
- member and co-chair, ERD Human Resources Committee (HRC), 2005-2006.
- Review, Gorokhovski, Weaver, conference proceedings paper, 4/2007.
- Review, ANSI/ANS-2.17 (Revised) Pre-Decisional Draft, Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Production Facilities, (9/2006).
- Review, Grant proposal, University of Memphis, Mississippi Embayment Regional Ground-Water Study (3/2006)
- member, ERD Quality Assurance (QA) committee, 2002-2004.
- Reviewer, research proposals, USGS and National Institutes for Water Resources (NWIR) (3/2004, 4/2006, 4/2007, 1/2010).
- Reviewer, NSF Hydrologic Sciences Program (1 proposal, 9/2003).
- Reviewer, proceedings manuscript, Simulation of a MTBE plume with MODFLOW, MT3D, and the Hydrocarbon Spill Screening Model (HSSM), R.C. Earle, J.W. Weaver.
- Reviewer, research proposal, Measurement of subsurface water and nutrient exchange with rivers in the eastern Neuse River watershed, P.I. David Genereux, North Carolina State University, North Carolina Water Resources Research Institute (Feb, 2001).
- Reviewer, research proposal, The effects of soil moisture and temperature on emissions of photochemical oxidants in Georgia, P.I. Christa Peters-Lidard, Georgia Tech, Georgia Water Resources Institute (Jan, 2001).
- Reviewer, research proposal, Watershed hydrologic modeling: a component of landscape indicators model for pesticides study in mid-atlantic coastal streams, P.I. Zhongbo Yu, UNLV, USEPA/NERL Las Vegas (Jan, 2001).
- Reviewer, manuscript, Temperature Modeling: A tool for source water delineation, for presentation at Ground Water Protection conference by Mr. Doug Heath, EPA R1 (08/00).
- Reviewer, proposal for Interagency Agreement, Spatial mapping of ground-water quality using statistical methods, Earl Greene, U.S. Geological Survey, Baltimore, MD, (06/2000).
- Reviewer, Kansas Water Resources Institute (proposal 12/99)
- Special Editor, MAIA Issue of Environmental Monitoring and Assessment (2/99).
- Reviewer, Georgia Water Resources Conference (paper 02/1999), (paper 01/2001)
- Reviewer, Maryland Geological Survey, (report 98, report 01/99).
- Reviewer, EPA Report "A lexicon of cave and karst terminology with special reference to environmental karst hydrology", EPA/600/R-99/006.
- Reviewer, DOE HPCC Grand Challenge Applications, 2 proposals, 8/96.
- Reviewer, Germany-Israel Fund, 1 proposal, 3/96.
- Reviewer, University of Wisconsin Water Research Center, 1 proposal, 1/1996, 1 proposal 1/1997, 1 proposal 12/2000, 1 proposal 1/2009.
- Member, USEPA Ground Water Protection Technical Forum, 1994-2001 (led in 2001).

- Work Assignment Manager, Hydrogeologic Conceptual Modeling, Mantech Environmental Technology, Inc., Ada, OK, 1993-1997.

UVa Committees:

- Hydrology Laboratory Committee, 1989-90.

I.U. Committees:

- President, Indiana University Recycling Co-op, 1988-89.
- Student Representative, SPEA Environmental Science & Policy Committee, 1988-89.
- Student Representative, M.S. in Environmental Science Degree Review Committee, 1986.
- SPEA Graduate Student's Faculty Recruitment Committee, 1985.

Other:

- admissions committee, Sigma Xi, 2005-2008.

PROFESSIONAL ACTIVITIES

INVITED PRESENTATIONS

- *Sustainability, Hydraulic Fracturing for Unconventional Oil and Gas, and the EPA Study of the Potential Impacts on Drinking Water Resources*, Athens Academy high school senior capstone class, Athens, GA, 09 Oct 2012.
- *Modeling and mapping the area of potential impact (AoPI) for Class VI CO₂ injection wells*, Environmental Engineering and Earth Sciences, Clemson University, South Carolina, 09 September 2011.
- *Deep Geologic Storage of Carbon (CO₂) and the Protection of Underground Sources of Drinking Water: mapping of the area of review (AoR) as a regulatory tool*, AAES Engineer's Forum on Sustainability, Washington, DC, 25 June 2010, and Princeton University workshop on "Scales and Resolution, Model Complexity, and Solution Approaches for CO₂ Storage", 07 Dec 2010.
- *Research at EPA: Reflections of a Simple Ground-Water Hydrologist*, School of Public & Environmental Affairs, Indiana University, 14 Sept 2006.
- *Modeling Ground Water/Surface Water Interactions from Well to Watershed Scales: Implications for Safe and Clean Water*, GRowE Symposium "Water, Policy, People", Kansas State University, Manhattan, Kansas, 05 Nov 2004.
- *Capture zone delineation for pumping wells revisited: choosing between simple methods and modeling*, Ground Water Protection Council Annual Forum, Charleston, SC, 21 September 2004.
- *Analytic element modeling for source water assessments of public water supply wells: case studies in glacial outwash and the basin and range*, Annual Meeting of the Geological Society of America, Sunday, October 27, 2002, Denver, CO.
- *Graduate School Experiences and Outlook*, East Central University, McNair Scholars Program Colloquium, February 21, 1996.
- *Geohydrology of the Arbuckle-Simpson Aquifer*, Soroptimists Club, Ada Oklahoma, April 10, 1995; Lion Club, Ada, Oklahoma, October 31, 1995, Leadership Ada, January 25, 1997.
- *Geohydrology Research at RSKERL*, Oklahoma University Rock Mechanics Group, Norman, OK, June 21, 1995.
- *Capture Zone Delineation using Models*, USEPA Phase II/V Waivers Workshop, Kansas City, Kansas, June 22-23, 1993.
- *PC Based Groundwater Modeling*, Technical Seminar on Groundwater, Kansas Water Well Association, Topeka, Kansas, May 12-13, 1992.
- *Regional Modeling of Ground Water Flow*, R.S. Kerr Environmental Research Laboratory, USEPA, Ada, Oklahoma, June 28, 1990.

CONFERENCE PRESENTATIONS

1. Kraemer, Stephen R, 2011. History of analytic element model development and applications at the US Environmental Protection Agency (1994-present), 2011 GSA Annual Meeting, Minneapolis, MN, Oct 10, 2011. http://gsa.confex.com/gsa/2011AM/finalprogram/abstract_193151.htm.
2. Kraemer, Stephen, 2011. Modeling and mapping the area of potential impact (AoPI) for Class VI CO2 injection wells, Ground Water Protection Council Annual Forum, Atlanta, GA, Sept 26. <http://www.gwpc.org>.
3. Price, K., Purucker, S.T., Kraemer, S.R., and Babendreier, J.E. 2011. Comparison of varied precipitation and soil data types for use in watershed modeling. Paper presented at the American Geophysical Union Fall Meeting in San Francisco, CA., December 5-9.
4. Price, K., Purucker, S.T., Kraemer, S.R., and Babendreier, J.E. 2011. Multiple likelihood estimation for calibration: tradeoffs in goodness-of-fit metrics for watershed hydrologic modeling. Poster presented at the American Geophysical Union Fall Meeting in San Francisco, CA., December 5-9.
5. Price, K., Purucker, S.T., and Kraemer, S.R. 2011. Comparison of radar and gauge precipitation data for use in watershed modeling. Paper presented at the Association of American Geographers Annual Meeting in Seattle, WA., April 12-16.
6. Price, K., Kraemer, S.R., and Purucker, S.T., 2010. Preliminary results: Multi-scale comparison of Stage IV NEXRAD and gauge precipitation data for watershed modeling. Paper presented at the Greater Atlanta Geomorphology and Hydrology Research Conference in Athens, GA., December 4.
7. Kraemer, S.R., 2011. Zones of endangering influence (ZEI) modeling and mapping for CO2 injection wells, 2011 Ground Water Summit, NGWA and GWPC, Baltimore, Maryland, 04 May 2011.
8. Price, K., S.T. Purucker, S.R. Kraemer, 2011. Comparison of radar and gauge precipitation data for use in watershed modeling (progress report), 2011 Georgia Water Resources Conference, Athens, GA, April 12, 2011.
9. Kraemer, S.R., 2010. Evaluation of analytical and semi-analytical solutions for modeling and mapping of the area of review (AoR), DOE/EPA Collaborative Review - Tracking Geologically-Sequestered CO2: Monitoring, Verification, & Accounting (MVA), Simulation, and Risk Assessment, Pittsburgh, PA, March 24, 2010.
10. Mohamoud, Y.M., and S.R. Kraemer, 2008. Environmental flow modeling challenges for rapidly urbanizing watersheds, Environmental Flows: Water for People and Nature of the Southeast, Conference promoted by the Southeastern Environmental Flows Partnership, Athens, GA, Oct 27-29, 2008.
11. Kraemer, S.R., 2006. Update report on analytic element ground-water modeling as a research program (1980-2006), International Conference on the Analytic Element Method, Kansas State University, Manhattan, KS, 17 May 2006.
12. Kraemer, S.R., 2006. EPA modeling tools for wellhead protection, National Monitoring Conference, San Jose, CA, 8 May 2006.
13. Kraemer, S.R., 2005. EPA modeling tools for capture zone delineation, National Ground Water Association Ground Water Expo, Cobb County, GA, 13-14 December 2005.
14. Kraemer, S.R., 2005. The water resources component of the ecological footprint of a federal research laboratory in Athens, Georgia, 2005 Georgia Water Resources Conference, held April 25-27, 2005, at the University of Georgia, Athens, Georgia.
15. Enfield, C.G., and S.R. Kraemer, 2004. Groundwater Quality Monitoring Design, 19 July 2004, University of Waterloo, Ontario, Canada.
16. Kraemer, S.R., 2003, The maturity of analytic element groundwater modeling as a research program (1980-2003), 4th International Conference on the Analytic Element Method for the modeling of groundwater flow and applications in environmental sciences, Ecole nationale superieure des mines, Saint-Etienne, France, 21 November.
17. Kraemer, S.R. 2002. Subsurface residence times as an algorithm for aquifer sensitivity mapping: testing the concept with analytic element ground water models in the Contentnea Creek basin, North Carolina, USA, Spring Meeting of the American Geophysical Union, May 31, 2002, Washington, DC.
18. Kraemer, S. 2001. Watershed research supporting nutrient TMDLs: Contentnea Creek watershed and Neuse River estuary, North Carolina, EPA/NSF/USDA Water and Watersheds Review, San Francisco, CA, April 18, 2001.
19. Bakker, M. and S. Kraemer, 2001. Ground-water Modeling with Analytic Elements: Cultivating Understanding of Ground-water Systems, *EPA/ERD Seminar Series*, Athens, GA, March 8, 2001.
20. Gilliland, A., S. Kraemer, S. Fine, 2000. Intermedia coupling of chemical and hydrologic cycles for multimedia integrated modeling systems (MIMS), *Atmospheric, Surface and Subsurface Hydrology and Interactions*, American Institute of Hydrology, Research Triangle Park, NC, November 5-8, 2000.

21. Kraemer, S.R., M.J. Cyterski, and E.J. Hayter, 2000. Testing linkages between ground water, watershed, and in-stream models in the Contentnea Creek basin, North Carolina, USA, *Atmospheric, Surface and Subsurface Hydrology and Interactions*, American Institute of Hydrology, Research Triangle Park, NC, November 5-8, 2000.
22. Kraemer, S.R., 1998. Introduction to the Multi-media Integrated Modeling System, *Mid Atlantic Integrated Assessment Conference*, Baltimore, MD, November 30-December 3.
23. Kraemer, S.R., 1998. Source water assessment of an alluvial ground water supply: the Smoky Hill River wellfield of the city of Hays, Kansas, *Source Water Assessment and Protection 98 Technical Conference*, Dallas, Texas, April 28-30.
24. Kraemer, S.R.*, W.J. de Lange, 1997. Regional-scale ground-water modeling of the Delmarva Peninsula (USA), *International Conference: Analytic Based Modeling of Ground Water Flow*, Nunspeet, The Netherlands, April 7-10.
25. Kraemer, S.R.*, H.M. Haitjema, 1994. Equivalent continuum representations of discrete fracture networks for regional scale ground-water modeling, *American Geophysical Union Chapman Conference on Aqueous Phase and Multiphase Transport in Fractured Rock*, Burlington, Vermont, September 12-15.
26. Kraemer, S.R., 1994. Distribution of areal recharge to discrete fracture network (FRACNET) model using the analytic element method, *International Conference: Analytic Element Modeling of Groundwater Flow*, School of Public and Environmental Affairs, Indiana University, Indianapolis, Indiana, April 19-21.
27. Kraemer, S.R.*, H.M. Haitjema, O.D.L. Strack, 1994. Capture zone modeling using the WhAEM (wellhead analytic element model), *International Conference: Analytic Element Modeling of Groundwater Flow*, School of Public and Environmental Affairs, Indiana University, Indianapolis, Indiana, April 19-21.
28. Haitjema, H.M.*, S. Mitchell-Bruker, and S.R. Kraemer, 1993. Hierarchical approach to modeling surface-ground water interactions: the walnut creek (Iowa) watershed in regional perspective, *Agricultural Research to Protect Water Quality*, Soil and Water Conservation Society, Minneapolis, Minnesota, February 21-24.
29. Kraemer, S.R., 1990. Early development of preferred flow paths in jointed carbonate rocks, *Conjunctive Surface Water and Groundwater Studies*, Indiana Water Resources Association Annual Symposium, Nashville, Indiana, June 6-8.
30. Kraemer, S.R.*, and H.M. Haitjema, 1989. A modeling approach for regional fracture flow systems, *Solving Ground Water Problems with Models*, International Ground Water Modeling Center (Butler University), and the Association of Ground Water Scientists and Engineers (National Water Well Association), Indianapolis, Indiana, February 7-9.
31. Kraemer, S.R., 1988. Ground water flow patterns in joint-controlled networks and cave development, *Second Conference on Environmental Problems in Karst Terranes and Their Solutions*, Association of Ground Water Scientists and Engineers (National Water Well Association), Nashville, Tennessee, Nov. 16-18.
32. Kraemer, S.R., 1988. Regional groundwater flow modeling in carbonate rock aquifers, *Water Resources: From Science to Regulation*, Indiana Water Resources Association Annual Symposium, DePauw University, Greencastle, Indiana, June 8-10.
33. Kraemer, S.R.*, and H.M. Haitjema, 1987. Regional modeling of fractured rock aquifers, *Groundwater Contamination: Use of Models for Decision Making*, International Conference, International Ground Water Modeling Center (Delft University), Amsterdam, The Netherlands, Oct. 27.

POSTER PRESENTATIONS

1. Kraemer, Stephen R., 2011. Modeling and mapping the area of potential impact associated with CO₂ injection wells, 2011 GSA Annual meeting, Minneapolis, Oct 9, http://gsa.confex.com/gsa/2011AM/finalprogram/abstract_193161.htm.
2. Bandilla KW, S.R. Kraemer. 2009. H13E-1026 Comparing (semi-) analytic solutions used to model the impact of deep carbon injection on the displacement and pressurization of the resident brine. American Geophysical Union Fall 2009 Meeting, poster, December 14-18: San Francisco, CA
3. Kraemer, S., D. DiGiulio, A. Levine, 2008. H23D-1001 Semi analytical models of CO₂ injection into deep saline aquifers: evaluation of the area of review and leakage through abandoned wells, AGU Fall Meeting, Dec 9, 2008.
4. Kraemer, Stephen R., James R. Craig, and Mark Bakker, 2007. An open source community web site to support ground-water model testing, American Geophysical Union Fall Meeting, 10 December 2007, San Francisco, CA.
5. Kraemer, Stephen R, Henk M. Haitjema, and Mark Bakker, 2007. Source water protection of public drinking water wells: use of computer models to delineate the zone contributing recharge to pumping wells, EPA Ecosystems Research Division Peer Review, 14 Aug 2007, Athens, GA.
6. West, Candida, Brenda Rashleigh, and Stephen Kraemer, Interdisciplinary Environmental Research at the EPA Ecosystems Research Division, U. Georgia Academy of the Environment conference, 24 Oct 2006.

7. Kraemer, S.R., E. Bouwer, M. Brusseau, B. Brownawell, R. Langford, J. Ryan, 2005. Delineation of source water protection zones and susceptibility determinations for public water supply wells, EPA Board of Scientific Councilors Drinking Water Review, Cincinnati, OH, June 22, 2005.
8. Tesoriero, Jim, Tim Spruill, Steve Harden, Ted Mew, Kathleen Farrell, Steve Kraemer, 2004. Subsurface nitrogen transport at a swine CAFO: integrating stratigraphy, geomorphology, geochemistry, and geohydrology tools, EPA Regional Science Workshop, College Park, MD, 06 Dec 2004.
9. Kraemer, Stephen R., 2003. Multi-aquifer modeling of shallow flow in the Middle Coastal Plain of North Carolina, USA, MODFLOW2003 and More: Understanding through Modeling, International Conference, Colorado School of Mines, Golden, CO, 18 Sept.
10. Kraemer, Stephen R., 2003. Preventing Contamination of Public Water Supply Wells using Computerized Modeling and Mapping Tools, EPA Science Forum, Washington, DC, 5-7 May.
11. Kraemer, Stephen R. Victor A. Kelson, and Henk M. Haitjema, 2000. Working with WhAEM2000: analytic element ground water modeling as if people mattered, 3rd International Conference on the Analytic Element Method in Modeling Groundwater Flow, Brainerd, MN, 16-19 April.
12. Kraemer, Stephen R., Susan J. Colarullo, and David E. Krantz, 1999. Poster – Investigation of subsurface residence times in the shallow coastal plain aquifer beneath Locust Grove, Maryland, USA, *ModelCARE99*, Zurich, Switzerland, September 20-23.
13. Kraemer, S.R., W.J. De Lange, 1998. Poster — Simulation of variable density flow in coastal aquifers using analytic elements: issues of data needs and model complexity, *Spring Meeting of the American Geophysical Union*, Boston, MA, May 26-29.
14. Kraemer, S.R., 1997. Poster — Technical support for analytic element modeling: an internet webpage, *International Conference: Analytic Based Modeling of Ground Water Flow*, Nunspeet, The Netherlands, April 7-10.
15. Kraemer, S.R., 1995. Poster — The role of "direct" ground water discharge to the Chesapeake Bay (USA) for basin-scale non-point source pollution assessment, *IUGG XXI General Assembly*, Boulder, CO, July 12.
16. S.R. Kraemer, W.J. de Lange, 1995. Poster — Demonstration of the analytic element method for modeling aquifers in the Northern Atlantic Coastal Plain (USA): variable density flow, *AGU 1995 Spring Meeting*, May 31, 1995, Baltimore, MD.
17. Kraemer, S.R., L.J. Bachman*, 1994. Poster — Hierarchical modeling of ground water in support of nonpoint-source pollution assessment within the Chesapeake Bay ground-watersheds, *USEPA/RSKERL Annual Seminar*, Oklahoma City, OK, and *Chesapeake Bay Research Conference*, Richmond, VA, June 1-3.
18. Levinson, B., R.R. Swank, and S.R. Kraemer, 1993. Poster – Regional Estimation of Agricultural Effects within the Western Corn Belt Plains Ecoregion: the MASTER program, *Spring Meeting*, American Geophysical Union, Baltimore, Maryland, May 24-28.
19. Jawson, M.D., and S.R. Kraemer, 1992. Poster – The concept of assimilative capacity in relationship to subsurface restoration, *Subsurface Restoration Conference*, USEPA/RSKERL-Ada, Dallas, TX, June 21-24.
20. Kraemer, S.R., and D.S. Burden, 1992. Poster – Capture Zone Delineation Using the Analytic Element Method: A Computer Modeling Demonstration for the Ellis County (Kansas) Wellhead Protection Committee, *Solving Ground Water Problems with Models*, International Ground Water Modeling Center and National Ground Water Association, Dallas, Texas, February 11-13.
21. Burden, D.S. and S.R. Kraemer, 1991. Poster – Capture Zone Delineation Using Computer Modeling and GIS: A case study for Ellis County, Kansas, *Wellhead Protection Conference*, National Water Well Association, Las Vegas, Nevada, September 11-13.
22. Kraemer, S.R., and H.M. Haitjema, 1987. Poster – Modeling of Three-Dimensional Flow on a Regional Scale, *Solving Groundwater Problems with Models*, National Water Well Association/International Ground Water Modeling Center, Denver, Colorado, February 10-12.

CONSULTING PROJECTS

1. Groundwater study near the Four County Landfill (Fulton County, Indiana), employed by Haitjema Consulting, Inc. under contract with Allen, Lippes, and Shonn, (1988).
2. Modeling of thermal energy storage in unconfined aquifers, employed by Haitjema Consulting, Inc. under contract with Battelle Pacific Northwest Laboratory, (1986).
3. Small quantity generation of hazardous waste in Maryland, for the Chesapeake Bay Foundation, Annapolis, Maryland, June (1983).

TECHNICAL ASSISTANCE & TRANSFER

- Source water protection zones for habitats in the Nanticoke River basin, Delmarva, USEPA/RSKERL technical assistance to USEPA Office of Water (Marilyn Ginsberg), 1995-97.
- Introduction to the Wellhead Analytic Element Model (WhAEM Version 1.0), USEPA/RSKERL Short Course, Instructor S.R. Kraemer, held at USEPA Regions 3,5,6,7,8,9, 1995-96.
- Capture Zone Delineation and Wellhead Protection for Ellis County, Kansas, USEPA/RSKERL technical assistance, S.R. Kraemer, D. Burden, T. Brikowski (1991-97).
- Review of the Regulatory Impact of the Proposed RCRA Subpart S Corrective Action Rule, USEPA/RSKERL Internal Report, S.G. Schmelling, S.R. Kraemer, J.W. Weaver, J.R. Acree, R. Varadhan, February, 1992, 44 pp.
- Calculations of Toxics Loadings from Groundwater to the Niagara River, New York, USEPA/RSKERL Internal Report, S.R. Kraemer, J. Acree, S.G. Schmelling, technical assistance to the Niagara Frontier Program, USEPA Region II (1990-92).

COOPERATIVE RESEARCH

- Task Order Project Officer, *Modeling impact of hydraulic fracturing (HF) on water resources based on water acquisition scenarios*, EPA OW NWPP Contract, EP-C-08-002 TO32, (Noelle Mills, Christopher Zabawa), Cadmus Group (Laura Blake), December 2011 - December 2012.
- Project Officer Representative, *Modeling analysis of hazards to groundwater related to hydrofracturing for hydrocarbon production from shales and tight sand reservoirs*, EPA OGWDW IAG DW 89-92235901-C (Bruce Kobelski), Lawrence Berkeley National Laboratory (George Moridis), Dec 2011 - Dec 2012.
- Project Officer Representative, *Critical pressure evaluation through TOUGH2 modeling and comparison, Task B2.*, EPA OGWDW IAG DW-89-92235901-8 (Sean Porse), Lawrence Berkeley National Laboratory (Jens Birkholzer), Aug 2009 - Aug 2012.
- Task Order Manager, *Area of Review (AoR) Mapping Tool: Development of User Interfaces*, EPA NWPP Contract EP-C-08-003/TO 22 (Camille Davis, Christopher Zabawa), RTI International (Jay Rineer), June 2010 - June 2011.
- Contract Officer Technical Representative (COTR), *Analytic element model for deep carbon geologic sequestration*, S.S. Papadopoulos & Associates (Matt Tonkin), May 2010 to June 2012.
- Collaborator, *Integrated Design, Modeling, and Monitoring of Geologic Sequestration of Anthropogenic Carbon Dioxide to Safeguard Sources of Drinking Water*, EPA STAR Project (Barbara Klieforth), Princeton University (Michael Celia), Oct 2009 - Sept 2012.
- Contract Officer Representative, *Area of Review Mapping Tool Prototype User Interface*, EPA OGWDW Contract EP-C-08-015 (Kevin Barnes), Cadmus Group-RTI International (Jay Rineer), Oct-Dec 2009.
- Project Officer Representative, *Semi-Analytical Solutions for Area-of-Review Estimates, Tasks A1, A5, A6*, EPA OGWDW IAG (Sean Porse), Lawrence Berkeley National Laboratory (Jens Birkholzer), Sep 2008- Dec 2009.
- Project Officer, *Geohydrologic foundations for multimedia exposure assessment: part 2 - characterization of nutrient loads with the hierarchical drainages of the Neuse River basin*, USEPA-USGS (Raleigh, NC) Interagency Agreement, Timothy Spruill, USGS Project Manager, October 1999-September 2002.
- Project Officer, *Geohydrologic foundations for multimedia exposure assessment: part 1 - observation of atmospheric-hydrospheric tracers within hierarchical basins of the Neuse River, North Carolina*, USEPA-USGS (Raleigh, NC) Interagency Agreement, Timothy Spruill, USGS Project Manager, October 1998-September 1999.
- Participant, Agreement of Cooperation between US Environmental Protection Agency Ecosystems Research Division and The Netherlands RIZA Institute for Inland Waters Management (10/1999 - 09/2002)
- Project Officer, *Geohydrologic Foundations for Ecosystem Restoration: Support for Traveltime and Modeling Studies of Baseflow Nutrient Loads in Mid Atlantic Coastal Plain Watersheds*, USEPA-USGS (Baltimore) Interagency Agreement, (USGS Project Manager L. Joseph Bachman), 1997-2000.
- Project Officer, *Groundwater Flow and Capture Zone Dynamics in Fractured Carbonate Rock Aquifers*, USEPA-University of Waterloo Cooperative Agreement, (P.I. Ed Sudicky), 1995-1998.

- Project Officer, *Comprehensive hydrological study of the Cheyenne Bottoms wetlands, Kansas*, USEPA-Kansas State University Cooperative Agreement, (P.I. James Kolliker), 1994-97.
- Project Officer, *Modeling of three-dimensional ground-water flow on a regional scale using the analytic element method*, USEPA-Indiana University (Bloomington) Cooperative Agreement, (P.I. Henk Haitjema), 1994-96.
- Project Officer, *Analytic element modeling of coastal aquifers*, USEPA-University of Minnesota (Minneapolis) Cooperative Agreement, (P.I. Otto Strack), 1994-96.
- Project Officer, *Assessment of the hydrogeology of Walnut Creek watershed near Ames, Iowa*, USEPA & USDA Interagency Agreement, (P.I. Michael Burkart, National Soil Tilth Lab, Ames, IA), 1994-95.
- Project Officer, *Modeling of nitrogen-nitrate distribution, movement, and transport within groundwater systems impacting the Chesapeake Bay Area, Extramural Phase I: Landscape Classification for groundwater flow and nitrogen load modeling — compilation and review of available data*, USEPA & USGS (Towson, MD) Interagency Agreement, (P.I. Joseph Bachman), 1993-94.
- Project Officer, *Groundwater flow in a carbonate aquifer, southern Oklahoma*, USEPA & USGS(Oklahoma City) Interagency Agreement, (P.I. Ronald Hanson), 1993-1996.
- Project Officer, *Characterization of the walnut creek (Iowa) management system evaluation area using a cone penetrometer*, USEPA/USArmy Corps of Engineers Interagency agreement, (P.I. T. Landris Lee), 1992-1993.
- Project Officer, *Site Characterization of Groundwater Flow and Transport in Fractured Rock Systems for Improvement of Pump-and-Treat Remediation*, USEPA/DOE Interagency Agreement with Lawrence Berkeley Laboratory, Earth Sciences Division (P.I. K. Karasaki), 1991-1995.
- Project Officer, *Demonstration of the Analytic Element Method for Aquifer Protection*, USEPA research agreement with Indiana University (co P.I. Henk M. Haitjema) and the University of Minnesota (co P.I. Otto D.L. Strack), 1991-1993.
- Project Officer, *Capture Zone Delineation: Model and Experiments*, USEPA research agreement with New Mexico Institute of Mining and Technology (co P.I. John L. Wilson) and the University of Waterloo (co P.I. Chuck Mase), 1991-1993.

TRAINING and SHORT COURSES

- American Red Cross certification, AED-Adult, Adult CPR, First Aid, 08 Mar 2012, Athens, GA (Instructor: Jim Bellah) (good for two years).
- EPA Project Officer training for Interagency Agreements, online 10 January 2005, online 03 January 2007, online 20 Dec 2010, classroom 19 September 2012.
- EPA Acquisition System (EAS) Program Office Training, 30 Jun 2010, Athens, GA (Instructor: Draydese Womack)
- Beginner and Advanced SWAT & APEX Model Training, NC State University, Greensboro (Nov 16-18, 2009) and Raleigh, NC (Nov 19-20, 2009), Instructor, Raghavan Srinivasan, Ph.D.
- Scientific Presentations Workshop, 19-20 May 2009, Athens, GA, presented by Scott Morgan.
- Scientific Writing Workshop, 12-13 May 2009, Athens, GA, presented by Susan Dakin, Ph.D.
- , Federal Retirement Seminar, 28-30 April 2009, Athens, GA, presented by Personal Benefit Services Group, Lakewood, CO, (Lecturers: Sharla Roundtree, Ron Blair)
- Building and applying Analytic Element Models with Examples and Exercises using Python, Sept 22-24, 2008, S.S. Papadopoulos & Associates, Inc, Bethesda, MD (Instructor: Mark Bakker).
- Federal Acquisition Certification for Contracting Officer Technical Representative (COR), 40 hours initial training, effective September 30, 2008, renewal September 30, 2012.
- Recertification for Contracting Officer Representatives, Ms. Lin Pinskey (17 December 2004) Athens, GA, Sylvia Danley-Smith (07 Feb 2006) Athens, GA, Sylvia Danley-Smith (07 Feb 2006) Athens, GA, Jamie Rodgers (06 Feb 2007) Athens, GA.
- EPA Contracting Officer Representative Mentor course, FAIOnline.com, August 22, 2001, Athens, Georgia.

- EPA Contracting Officer Recertification, March 1, 2000, Athens, Georgia.
- GSA Advantage and Global Supply training, 14 June 2006, Kevin Stallings, Athens, GA.
- Diversity in the Workplace, Mary Livingston, 23 February 2005, Athens, GA.
- Creating Sustainable Federal Buildings, web cast, US Dept. of Energy Federal Energy Management Program, 11-12 Jan 2005.
- Modeling Regional Groundwater Flow with the Analytic Element Method, School of Engineering and Applied Sciences, University of Buffalo, 28-29 June 2004, Buffalo, NY, Alan Rabideau, Igor Jankovic, James Craig.
- EPA Annual Quality Assurance Conference: (1) Interpretation of Monitoring Data; and (2) Interpretating Multivariate Analysis, October 1, 2003, Atlanta, GA, Mr. John Warren.
- Water Quality Modeling and TMDL Development: The WASP Model, May 5-9, 2003, EPA Region 4, Atlanta, GA, Tim Wool, Robert Ambrose.
- EPA Records Management Course for E-Mail, April 22, 2003, Athens, GA, online.
- EPA/NERL Simplified Acquisition Process, April 8, 2003, Athens, GA, Mr. Mike Bower.
- EPA Basic Records Management, Feb 4, 2003, Athens, GA, Ms. Denitia Johnson.
- The Seven Habits of Highly Effective People of Stephen Covey, Feb 3, 2003, Athens, GA, Mr. Jerry Aull.
- EPA/ORD/NERL Integrated Information and Quality Management Plan Training Certificate (IIQMP), January 23, 2003, signed by Ms. Jewel Morris.
- MIKE-SHE: integrated groundwater surface water modeling, July 28, 2002, Las Vegas, NV.
- US Army Corps of Engineers GMS (Groundwater Modeling System) Training, April 3-4, 2002, Rockville, MD.
- Model Calibration and Predictive Analysis using PEST, August 29-31, 2000, Athens, Georgia.
- Object Oriented Programming and Design for Scientists, May 17-21, 1999, Athens, Georgia (Betrand Meyer, Interactive Software Engineering).
- Interest Based Problem Solving, Athens, Georgia, April 13-15, 1999 (USDA Training Center).
- Introduction to ESRI's Avenue, Athens, GA, July 22-23, 1998 (Christine Perkins, OAO Corporation).
- BASINS Training Course, Washington, DC, April 13-7, 1998 (Mohammed Lahlou, Tetra Tech).
- Team Effectiveness by Zenger Miller, Inc. , Ada, OK, January 1997 6 sessions, (Dee Hutchings, Stephen Kovash, EPA Facilitators).
- EPA Project Officer Training for Grants and Cooperative Agreements, April 8-10, 1996 (Stephen Kovash, Robert S. Kerr Environmental Research Laboratory, Ada, OK).
- Ground Water/Surface Water Interactions, Polson, MT, September 5-10, 1995 (Jack Stanford, Flathead Lake Biological Station).
- Hydrological Simulation Program Fortran (HSPF) Workshop, Chicago, IL, July 18-21, 1994, (Anthony Donigian, AquaTerra Consultants).
- 40 Hour Hazardous Waste and Emergency Response Training Program (HAZWOPER), San Antonio, TX, February 14-18, 1994, (James Shelburn, Quality Safety Services, Inc.).
- Suggested Practices for Site Investigation and Drilling and Sampling Safety, Ada, OK, August (1993) (Lowell Leach, Consulting Engineer).
- Electromagnetic Borehole Flowmeter for Hydrogeological Assessment, Ada, OK, July 22-23, 1993 (Fred Molz, Auburn University).
- Scientific Visualization Workshop, Martin Marietta, Ada, OK, 1993.
- Contract Administration course, USEPA Project Officer Recertification Program, Ada, OK, January 11, 1993, Athens, GA, February 1, 2000.

- Introduction to ARC/INFO GIS, ESRI Corporation, McLean, Virginia, June 15-19, 1992.
- Contract Administration Course, USEPA Project Officer Certification Program, Ada, OK, February 5-7, 1991.
- Nonlinear Dynamics, Fractals, and Chaos in Geophysics, American Geophysical Union and Mineralogical Society of America, Baltimore, MD, May 28, 1990.
- Remote Sensing and Hydrogeology: Fracture Trace and Lineament Analysis, National Water Well Association, Springfield, MA, October 1-3, 1986.
- Modeling of Fluid Flow and Contaminant Transport in Fractured or Granular Porous Media, International Groundwater Modeling Center, Indianapolis, IN (Peter Huyakorn, Ed Sudicky), 12-16 May 1986.

GRANTS, FELLOWSHIPS, AND AWARDS

- EPA “On-the-Spot” and “Time Off” (8 hours) Award, for support of the EPA Hydraulic Fracturing Roundtable discussions, 19Nov2012
- EPA “On-the-Spot” Award, for support of the development of the NERL Lexicon wiki, 14April2011
- EPA/NERL “S” Award, superior accomplishment, for technical support to Regions in source water protection, and for professionalism as Acting Regulatory Support Branch, March 17, 2011
- EPA/NERL “T” Award, for service on the Health, Safety, and Environmental Management Committee, June 16, 2010
- EPA/NERL Individual cash award, May 13, 2010
- EPA/NERL “T” Award, high quality award Albemarle Pamlico Estuary System (APES) Team, 01 Jan 2008 to 30 Sep 2008
- EPA/NERL “T” Award, for service on the Health, Safety, and Environmental Management Committee, 01 Jan 2008 to 31 Dec 2008
- EPA/NERL “S” Award, superior accomplishment, leadership on MEERT, 01 Jan 2008 to 30 Sep 2008
- EPA/NERL “T” Award (team award), SHEM committee, 17 Jan 2007 to 16 Nov 2007
- EPA/NERL “S” Award (superior accomplishment), leadership on MEERT, 01 Jan 2007 to 31 Dec 2007
- EPA/NERL “S” Award (superior accomplishment), support for R4 deep well injection permit, 01 Jan 2006 to 31 Dec 2006
- EPA/NERL “S” Award (superior accomplishment), 01 Jan 2005 to 31 Dec 2005
- EPA/NERL “S” Award (superior accomplishment), 01 Jan 2004 to 31 Dec 2004.
- EPA/NERL “S” (superior accomplishment) and “T” (team) Award, Environmental Management System Team Award, 26 Aug 2004
- EPA/NERL “On-The-Spot Award”, for mentoring Kuban Ibraev, Fullbright Scholar, 16 July 2004
- Team Award, for participation in National Association for Equal Opportunity in Higher Education (NAFEO) Program, July, 2000
- EPA/NERL “On-The-Spot Award”, June, 1999
- EPA/NERL Sustainable Superior Performance Award, June, 1998
- Karst Research Fellowship, Caves Research Foundation, 1988
- Outstanding Student Award, Indiana Water Resources Association Symposium, June 10, 1988
- SPEA Fellowship, June 1985 - May 1988
- Grant-In-Aid-of-Research, I.U. Graduate School, October, 1986
- SPEA Outstanding Associate Instructor Award, 1983-84

PUBLICATIONS

ARTICLES (peer reviewed)

1. Kraemer, S., et al., 2013. Evaluation of water acquisition scenarios supporting hydraulic fracturing for natural gas in the Susquehanna River and Upper Colorado River Basins USA, in development for submittal to ES&T
2. Price, Katie, S. Thomas Purucker, Stephen R. Kraemer, Justin E. Babendreier, Chris D. Knightes, 2012. Comparison of radar and gauge precipitation in watershed models across spatial and temporal scales, for submittal to Water Resources Research
3. Price, Katie, Tom Purucker, Stephen Kraemer, Justin Babendreier, 2012. Tradeoffs among watershed model calibration targets for parameter estimation, *Water Resour. Res.* 48, W10542, doi:10.1029/2012WR012005.
4. Bandilla, K., S. Kraemer, and J.T. Birkholzer, 2012. Using semi-analytic solutions to approximate the area of potential impact for carbon dioxide injection, *International Journal of Greenhouse Gas Control*, 8:196-204
5. Johnston, John M., Daniel J. McGarvey, M. Craig Barber, Gerry Laniak, Justin Babendreier, Rajbir Parmar, Kurt Wolfe, Stephen R. Kraemer, Michael Cyterski, Chris Knightes, Brenda Rashleigh, Luis Suarez, Robert Ambrose, 2011. An integrated modeling framework for performing environmental assessments: application to ecosystem services in the Albemarle-Pamlico basins (NC and VA, USA), *Ecological Modeling*, 222:2471-2484, doi:10.1016/j.ecolmodel.2011.03.036.
6. Birkholzer, J.T., J.P. Nicot, C.M. Oldenburg, Q. Zhou, S. Kraemer, K. Bandilla, 2011. Brine flow up a well caused by pressure perturbation from CO₂ storage: static and dynamic evaluations, *International Journal of Greenhouse Gas Control*, 5:850-861, doi:10.1016/j.ijggc.2011.01.003.
7. Kraemer, Stephen R., 2007. Analytic element ground water modeling as a research program (1980-2006), *Ground Water*, 45(4):402-408, July/August, doi:10.1111/j.1745-6584.2007.00314.x.
8. Johnston, John M., Joan H. Novak, and Stephen R. Kraemer, 2000. Multimedia integrated modeling for environmental protection: introduction to a collaborative framework, *Journal of Environmental Monitoring and Assessment*, 63:253-263.
9. Kelson, V.A., H.M. Haitjema, and S.R. Kraemer, 1993. GAEP: A geographic preprocessor for ground water flow modeling, *Hydrological Science and Technology*, 8(1-4):74-83.
10. Haitjema, H.M., and S.R. Kraemer, 1988. A new analytic function for modeling partially penetrating wells, *Water Resources Research*, 24(5):683-690.

BOOK CHAPTERS

1. Kraemer, S.R., 200X. Chapter 6. Surface and Ground Water Quality, In *Preliminary MASTER Assessment of the Impacts of Alternative Agricultural Management Practices on Ecological and Water Resource Attributes of Walnut Creek Watershed, Iowa*, not published.

PROCEEDINGS

1. Price, K., S.T. Purucker, S.R. Kraemer, 2011. Multi-scale comparison of stage IV NEXRAD (MPE) and gauge precipitation data for use in watershed modeling, In: *Proceedings of the 2011 Georgia Water Resources Conference*, Athens, GA, held April 11-13, 2011, at the University of Georgia, http://www.gawrc.org/2011paper_pdfs/6.2.3Price.pdf.
2. Kraemer, S.R., 2010. Evaluation of analytical and semi-analytical solutions for modeling and mapping of the area of review (AoR), DOE/EPA Collaborative Review - Tracking Geologically-Sequestered CO₂: Monitoring, Verification, & Accounting (MVA), Simulation, and Risk Assessment, Pittsburgh, PA, March 24, 2010 (<http://www.netl.doe.gov/publications/proceedings/10/doe-epa/Kraemer.pdf>).
3. Kraemer, S.R., 2005. The water resources component of the ecological footprint of a federal research laboratory in Athens, Georgia, In: *Proceedings of the 2005 Georgia Water Resources Conference*, held April 25-27, 2005, at the University of Georgia, Kathryn J. Hatcher, editor, Institute Ecology, The University of Georgia, Athens, Georgia, p. 50-53.
4. Dai, T., R. B. Ambrose, K. Alvi, T. Wool, H. Manguerra, M. Chokshi, H. Yang, and S. Kraemer, 2005. Characterizing spatial and temporal dynamics: Development of a grid-based watershed mercury loading model. In *Proceedings of the 2005 Watershed Management Conference - Managing Watersheds for Human and Natural Impacts: Engineering, Ecological, and Economic Challenges*, ASCE.

5. Kraemer, S.R., 2003. The maturity of analytic element groundwater modeling as a research program (1980-2003), In: *Proceedings of the 4th International Conference on the Analytic Element Method for the modeling of groundwater flow and applications in environmental sciences*, Ecole nationale superieure des mines, Saint-Etienne, France, 20-21 November.
6. Kraemer, S.R., T.B. Spruill, A.J. Tesoriero, H.E. Mew Jr, and K.M. Farrell, 2003. Modeling to evolve understanding of the shallow ground water flow system beneath the Lizzie Research Station, North Carolina, In: *Guidebook of the Carolina Geological Society Annual Field Trip, November 14-16, 2003*, 35-46, www.carolinageologicalsociety.org.
7. Kraemer, Stephen R. Victor A. Kelson, and Henk M. Haitjema, 2000. Working with WhAEM2000: analytic element ground water modeling as if people mattered, In: *Proceedings of the 3rd International Conference on the Analytic Element Method in Modeling Groundwater Flow, Brainerd, MN, 16-19 April 2000*, Volume 1, Dept. of Civil Engineering, University of Minnesota.
8. Kraemer, Stephen R. Johnston, John M. Susan J. Colarullo, Joseph L. Bachman, 1999. Modeling Subsurface Residence Times at Locust Grove, Maryland, In: *Proceedings of the Chesapeake Bay Modeling Workshop on "Watershed Modeling"*, St. Michael's, Maryland, Workshop CD-ROM by Veri-Tech, Inc., Vicksburg, MS.
9. Kraemer, S.R., 1998. Source water assessment of an alluvial groundwater supply: the Smoky Hill River wellfield of the city of Hays, Kansas, In: *Source Water Assessment and Protection 98 Technical Conference*, National Water Research Institute, Fountain Valley, CA, 31-33.
10. Kraemer, S.R., 1994. Distribution of areal recharge to discrete fracture network (FRACNET) model using the analytic element method, In: *Analytic Element Modeling of Groundwater Flow*, School of Public and Environmental Affairs, Indiana University, 163-168.
11. Kraemer, S.R., H.M. Haitjema, O.D.L. Strack, 1994. Capture zone modeling using the WhAEM (wellhead analytic element model), In: *Analytic Element Modeling of Groundwater Flow*, School of Public and Environmental Affairs, Indiana University, 55-59.
12. Haitjema, H.M., S.Mitchell-Bruker, and S.R. Kraemer, 1993. Hierarchical approach to modeling surfacewater-groundwater interactions: the walnut creek (Iowa) watershed in regional perspective, In: *Agricultural Research to Protect Water Quality*, Soil and Water Conservation Society, 486-489.
13. Jawson, M.D., and S.R. Kraemer, 1992. The concept of assimilative capacity in relationship to subsurface restoration, In: *Subsurface Restoration Conference*, USEPA/RSKERL-Ada, 150-152.
14. Kraemer, S.R., and H.M. Haitjema, 1989. A modeling approach for regional fracture flow systems, In: *Solving Ground Water Problems with Models*, National Water Well Association, 425-430.
15. Kraemer, S.R., and H.M. Haitjema, 1989. Regional modeling of fractured rock aquifers, In: *Groundwater Contamination: Use of Models for Decision Making*, G. Jousma et al. (eds.), Kluwer Academic Publishers, 467-476.
16. Kraemer, S.R., 1988. Ground water flow patterns in joint-controlled networks and cave development, In: *Second Conference on Environmental Problems in Karst Terranes and Their Solutions*, National Water Well Association, 17-27.

REPORTS

1. Kraemer, S.R., K.Bandilla, Q. Zhou, J. Birkholzer, M.Celia, J.McDonald, Area of Review for Geologic Sequestration, EPA Research Report, (in development).
2. Varadharajan, C., Birkholzer, J., Kraemer, S., Porse, S., Carroll, S., Wilkin, R., Maxwell, R., Bachu, S., Hovorka, S., Daley, T., Digiulio, D., Carey, B., Strasizar, B., Huerta, N., Gasda, S., Crow, W., 2012. Summary Report on 2011 CO2 Geologic Sequestration & Water Resources Workshop, Lawrence Berkeley National Laboratory Report, LBNL-5346E, January 2012, 79 pages.
3. Kraemer, Stephen R. Henk M. Haitjema, and Victor A. Kelson, 2007. Working with WhAEM2000: Capture Zone Delineation for a City Wellfield in a Valley Fill Glacial Outwash Aquifer Supporting Wellhead Protection, EPA/600-05/151, update July 2007.
4. Spruill, T.B., A.J. Tesoriero, H.E. Mew Jr., K.M. Farrell, S.L. Harden, A.B. Colosimo, and S.R. Kraemer, 2005. Geochemistry and characteristics of nitrogen transport at a confined animal feeding operation in a Coastal Plain agricultural watershed, and implications for nutrient loading in the Neuse River Basin, North Carolina, 1999-2002, U.S. Geological Survey Scientific Investigations Report 2004-5283, 57pp.
5. Kraemer, Stephen R. Henk M. Haitjema, and Victor A. Kelson, 2000. Working with WhAEM2000: Source Water Assessment for a Glacial Outwash Wellfield, Vincennes, Indiana, EPA/600-00/022, April 2000.
6. Bakker, Mark, Stephen R. Kraemer, Willem J. De Lange, and Otto D.L. Strack, 2000. Analytic Element Modeling of Coastal Aquifers, EPA/600/R-99/110, January 2000.

7. Suter, G.W.,II, L.W. Barnthouse, S.R. Kraemer, M.E. Grismer, D.S. Durnford, D.B. McWhorter, F.R. O'Donnell, C.F. Baes III, and A.E. Rosen, Environmental Risk Analysis for Oil from Shale, ORNL/TM-9808, 130pp., Oak Ridge National Laboratory, Oak Ridge, Tennessee, 1985.
8. Barnthouse, L.W., J.E. Breck, T.D. Jones, S.R. Kraemer, E.D. Smith, G.W. Suter II, Development and Demonstration of a Hazard Assessment Rating Methodology for Phase II of the Installation Restoration Program, ORNL Report to the U.S. Air Force, 1985.

ABSTRACTS

1. Bandilla K.W., S.R. Kraemer (2009), Comparing (semi-) analytic solutions used to model the impact of deep carbon injection on the displacement and pressurization of the resident brine, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract H13E-1026.
2. Kraemer, S., D. DiGiulio, A. Levine, 2008. Semi analytical models of CO2 injection into deep saline aquifers: evaluation of the area of review and leakage through abandoned wells, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H23D-1001.
3. Mohamoud, Y.M., and S.R. Kraemer, 2008. Environmental flow modeling challenges for rapidly urbanizing watersheds, In: *Proceedings of the conference on Environmental Flows: Water for People and Nature in the Southeast*, Southeastern Environmental Flows Partnership, Oct 27-29, The Classic Center, Athens, GA, p. 30.
4. Rashleigh, B., S.T. Purucker, L. Prieto, L. Suarez, R.B. Ambrose, and S.R. Kraemer, In: *Proceedings of the conference on Environmental Flows: Water for People and Nature in the Southeast*, Southeastern Environmental Flows Partnership, Oct 27-29, The Classic Center, Athens, GA, p. 21.
5. Kraemer, S.R., M. Bakker, and J.R. Craig, 2007. An open source community web site to support groundwater model testing, In: *Proceedings of the Fall Meeting of the American Geophysical Union*, H13B-1248.
6. Kraemer, S.R., 2006. Update report on analytic element ground-water modeling as a research program (1980-2006), In: *Proceedings of the International Conference on the Analytic Element Method*, May 14-17, 2006, Kansas State University, Manhattan, KS, p. 220.
7. Kraemer, S.R., and Henk M. Haitjema, 2005. EPA modeling tools for capture zone delineation, Interest Group Sessions Program and Abstract Book, 2005 National Ground Water Association Ground Water Expo, Dec 13-16, Cobb County, GA, p. 49.
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